

Altair

Subject:

7th Combined Science

Class: Reproduction
in Humans

Date: July 1

2011



Teacher's notes

Objectives

Vocabulary

Link and Learn

Prepared by

MALE REPRODUCTIVE SYSTEM



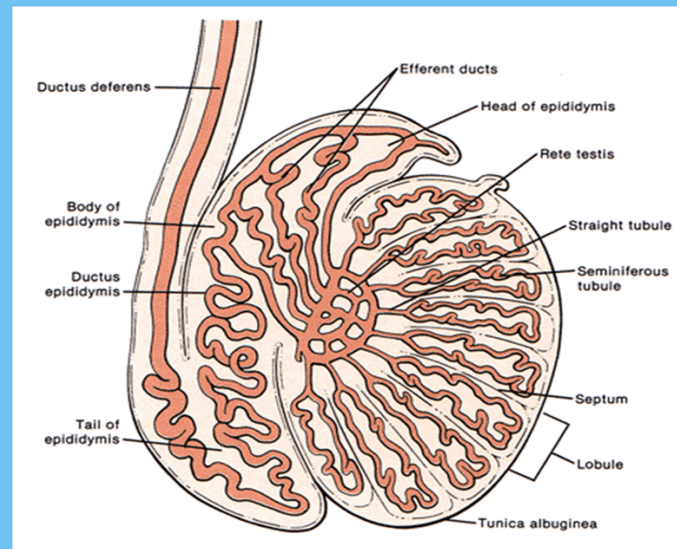


TESTES



Male

- The roles of a male in sexual reproduction are to produce sperm cells (male gametes) and to deliver the sperm cells to the female reproductive system to fertilize an egg cell.
- The **testes** or testicles, are the sperm-producing organs.
- They are located in the *scrotum*, an external skin sac.
- The testes are initially formed in the abdominal cavity from where they later descend.
- The normal body temperature of 37°C (98°F) is too high for sperm to complete development, in the scrotum the temperature is 3°C lower.

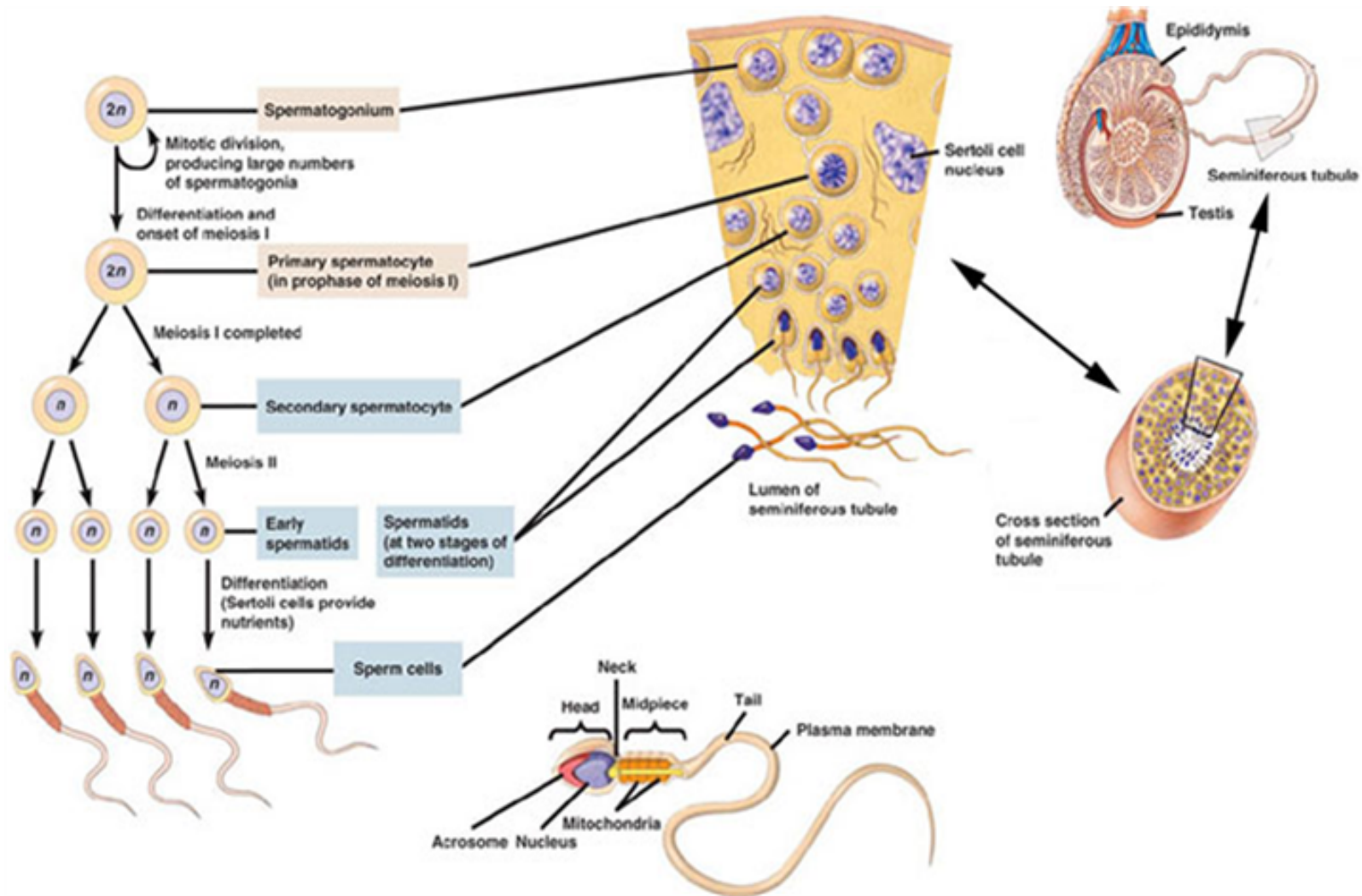


ANIMATION

Male Reproductive System

<http://goo.gl/Oq8Ri>

Spermatogenesis



ANIMATION

Spermatogenesis

<http://goo.gl/ByMPK>

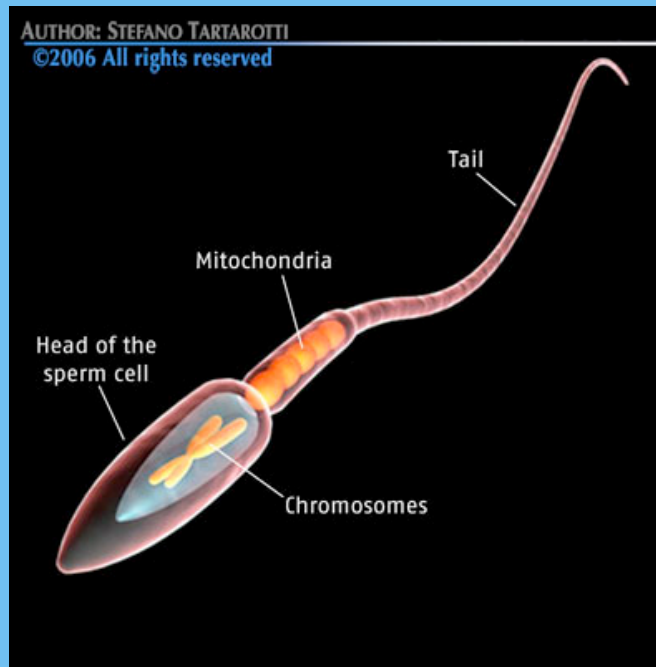


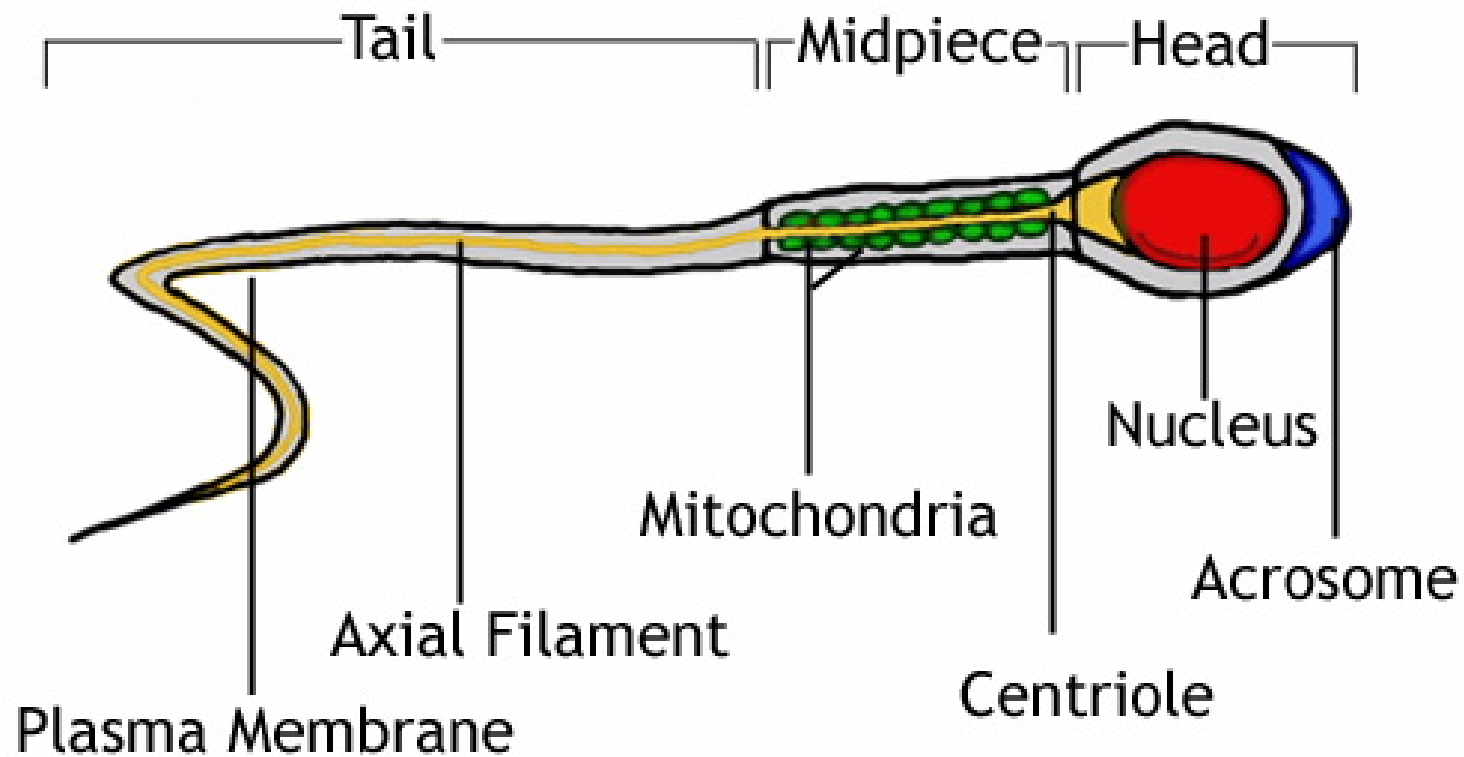
Mature Sperm



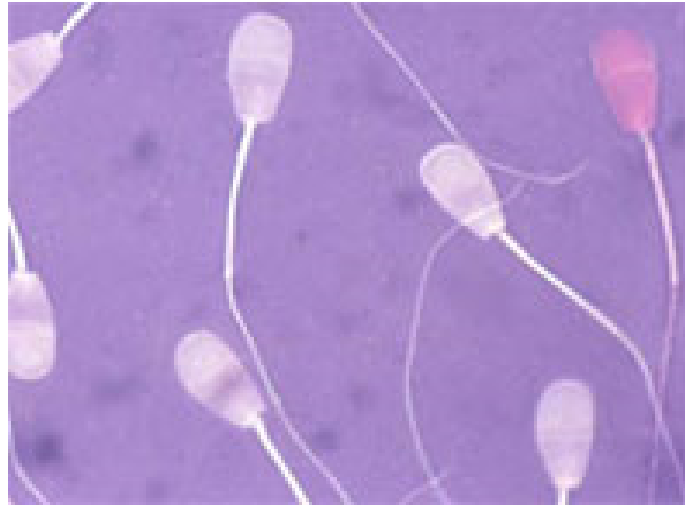
Male

- A mature sperm cell consists of a head with very little cytoplasm, a midpiece, and a long tail.
- Enzymes at the tip of the head, help the sperm penetrate the egg.
- The midpiece contains many mitochondria that supply energy.
- The tail is a flagellum that whips back and forth, helping the sperm to move.

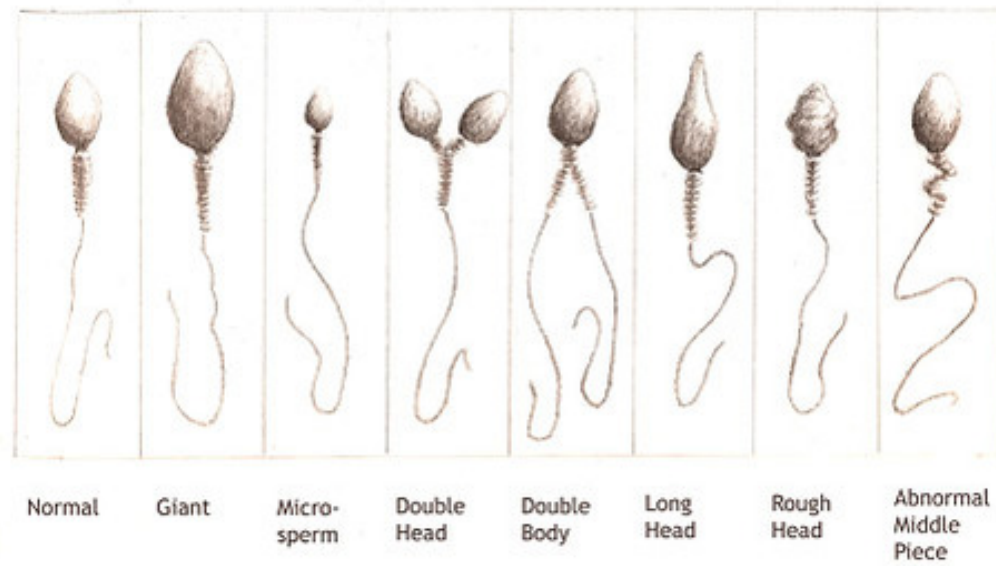


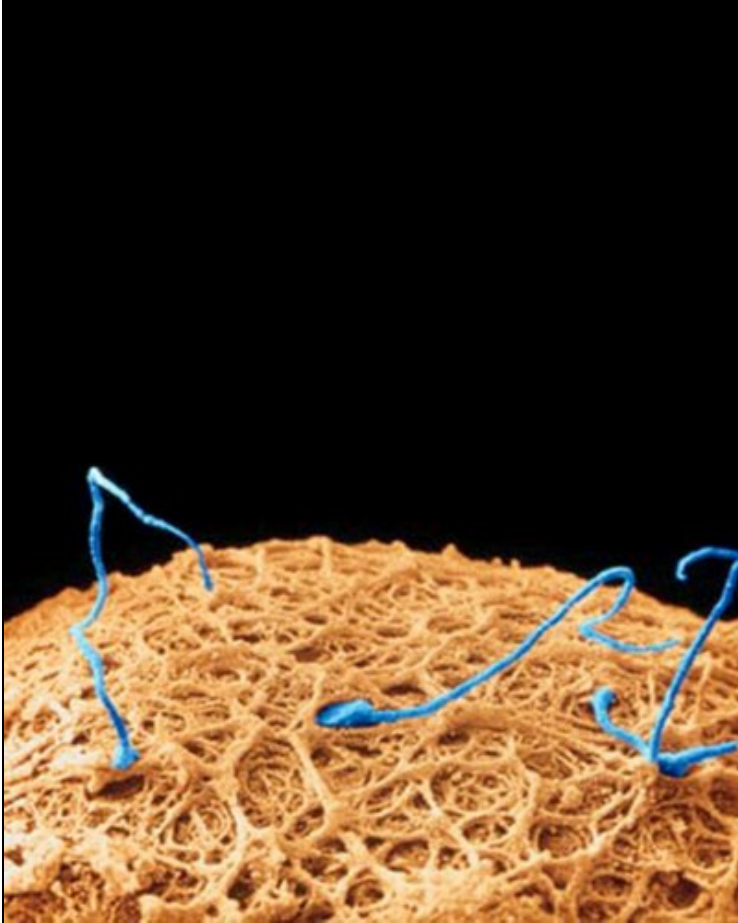


In terms of Organelles...



Sperm Morphology





<http://bit.ly/2bU5ZV>

<http://bit.ly/4osEh2>



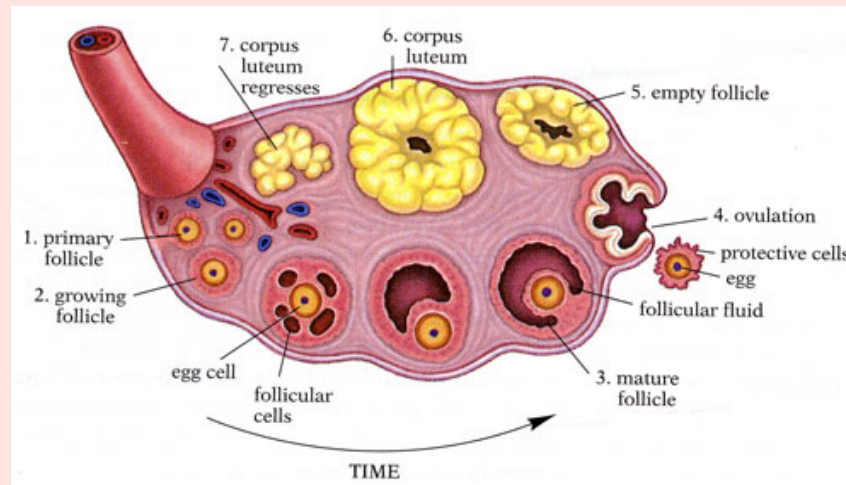
FEMALE REPRODUCTIVE SYSTEM



Female

Ovaries

- Each month, the female reproductive system prepares for a possible pregnancy by producing a mature egg cell, the female gamete.
- The ovaries are the gamete-producing organs of the female reproductive system, located in the abdominal cavity.
- Females are born with all of the egg cell they will ever produce. At birth, the ovaries contain about 2 million immature egg cells.
- Like sperm cells, the eggs are haploid (23 chromosomes) because they're formed through meiosis, in a process called oogenesis.



<http://bit.ly/fc2yW>

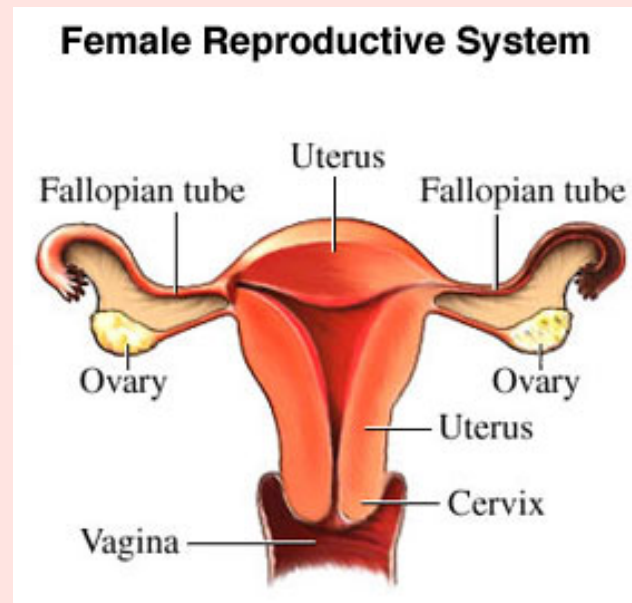


Female Reproductive System



Female

- An egg is released from an ovary about every 28 days to the *fallopian tube*, which is a passage way thorough which an egg moves from an ovary toward the uterus.
- The *uterus* is a hollow, muscular organ.
- When fertilization occurs, development will take place in the uterus.

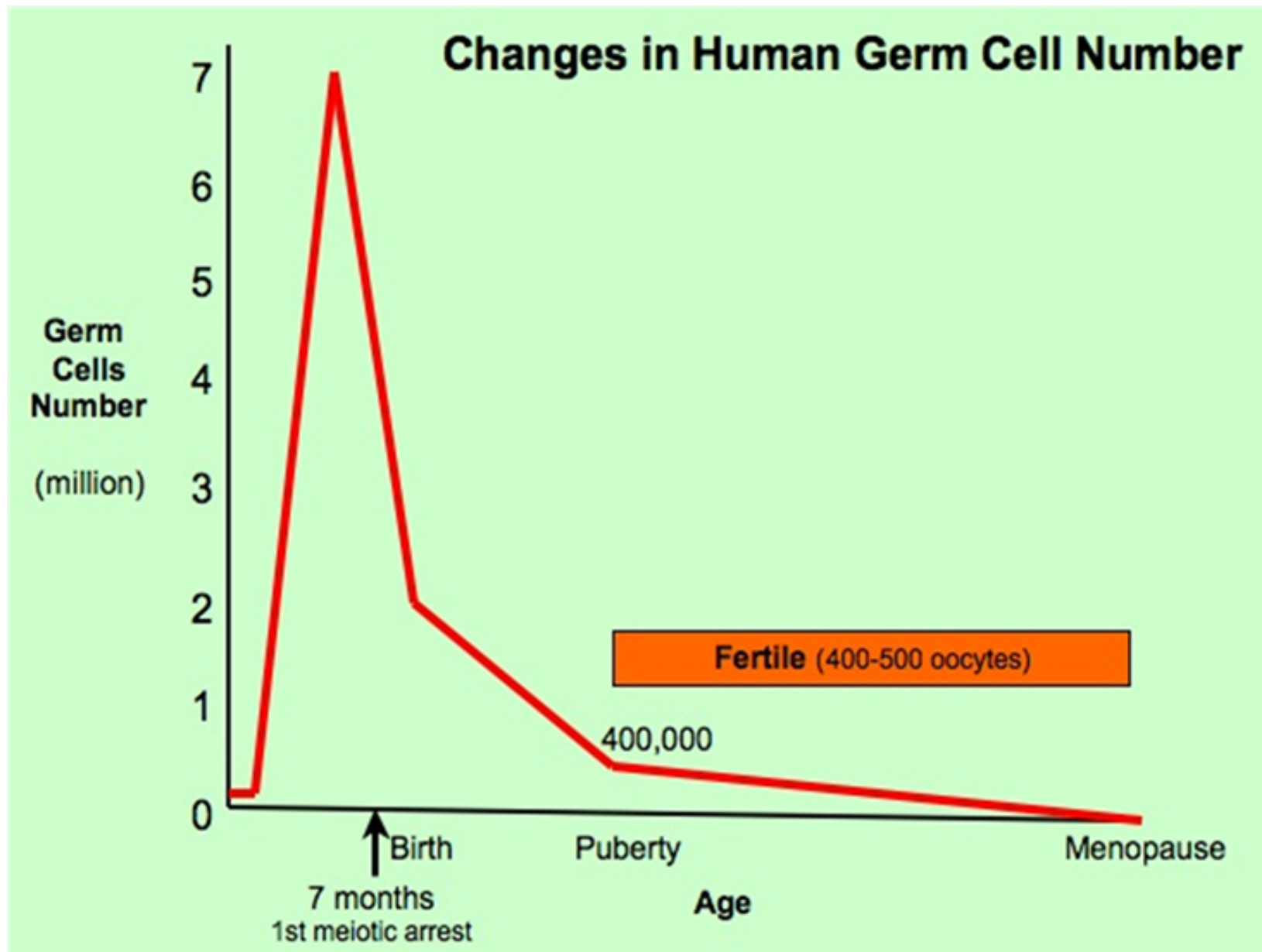


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ANIMATION

Female Reproductive System

<http://goo.gl/PjgyX>





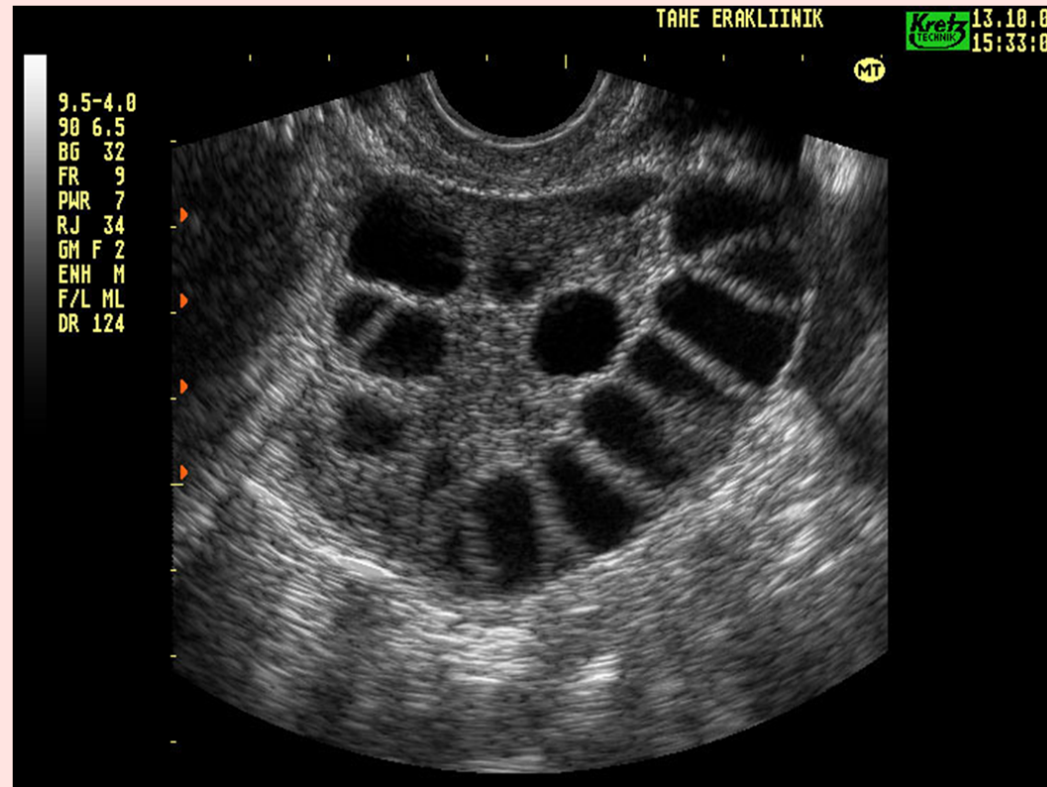
Ovarian Cycle

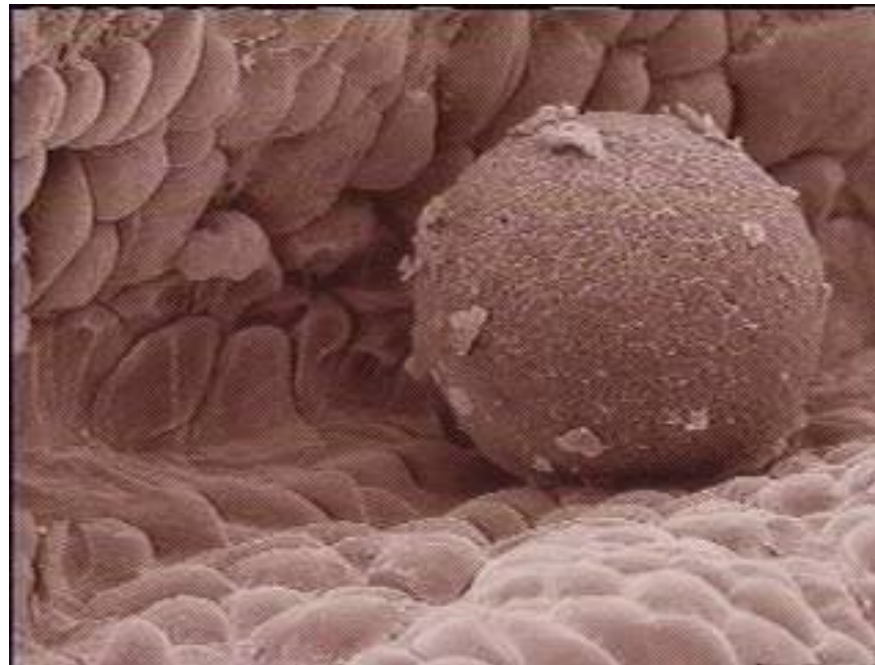


Female

OVULATION

- An intricate control of female hormones is necessary to control the egg development and maturation as well as the rupture of the follicle and ovarian wall and subsequent egg release to the fimbriae.





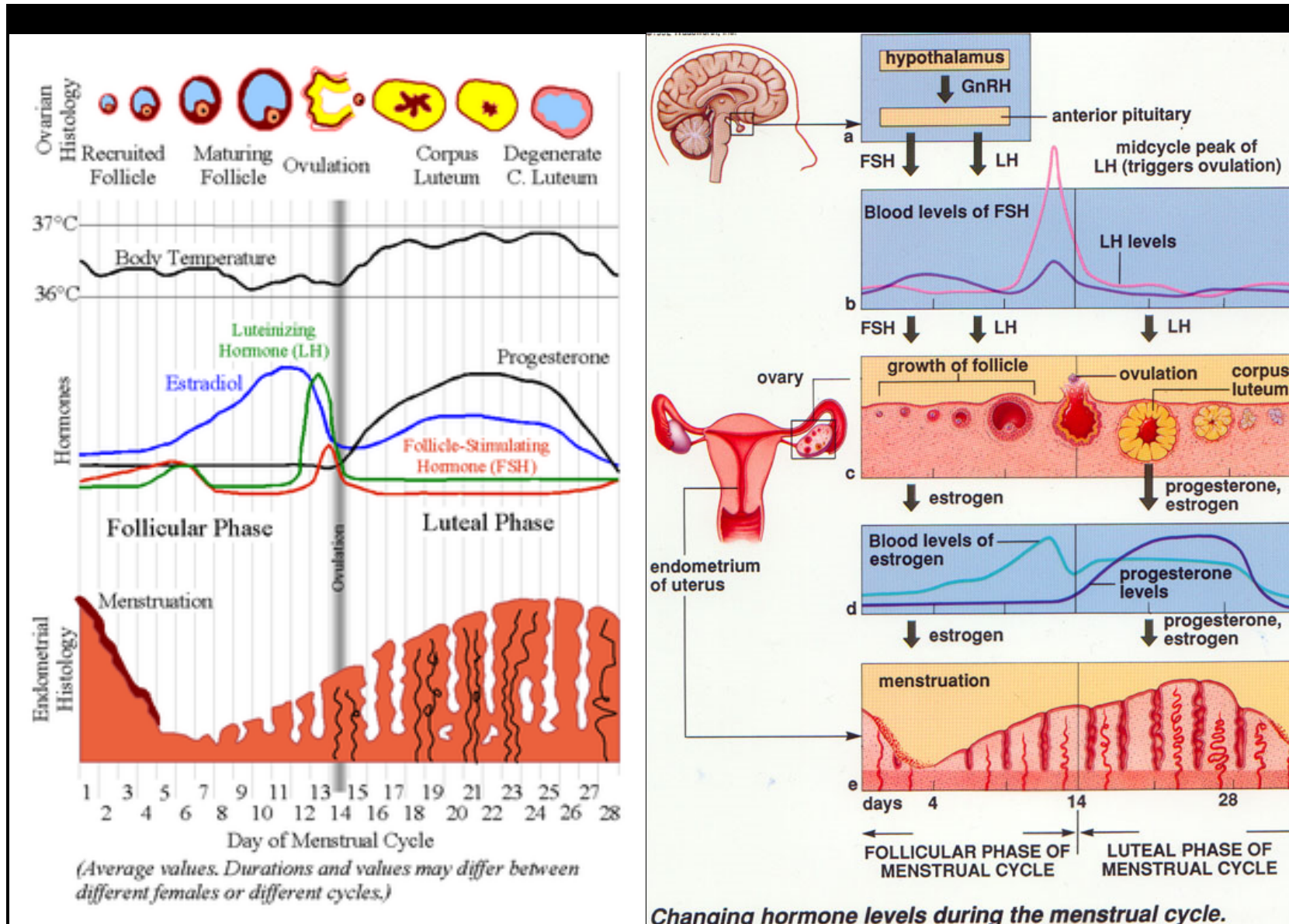


Menstrual Cycle



Female

- While changes occur in the ovaries during the ovarian cycle, changes also occur in the uterus to prepare it for a possible pregnancy each month, this is called the *menstrual cycle*, which lasts about 28 days.
- The menstrual cycle is also influenced by hormones.
- The end of the menstrual cycle coincides with the end of the luteal phase of the ovarian cycle.



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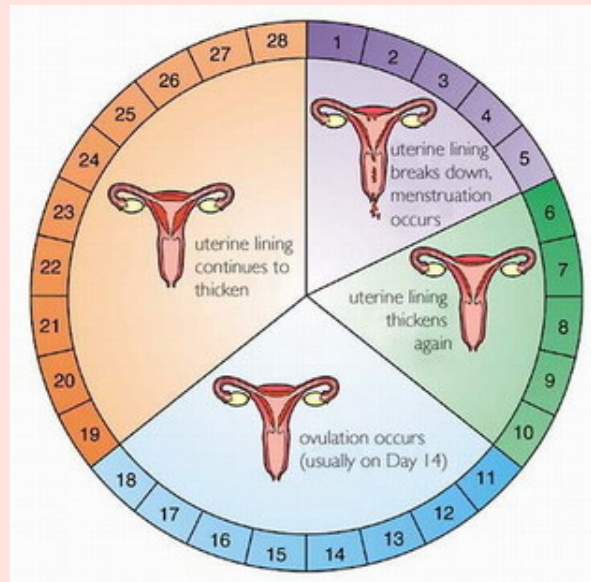


Menstruation



Female

- When the lining of the uterus is shed, blood vessels break and bleeding results, a mixture of blood and tissue then leaves the body, this process is called *menstruation*.
- It usually occurs 14 days after ovulation.
- Women eventually stop menstruation, usually between the ages of 45 and 55, this event is called *menopause*.
- After that event, women no longer ovulate ending her reproductive cycle.



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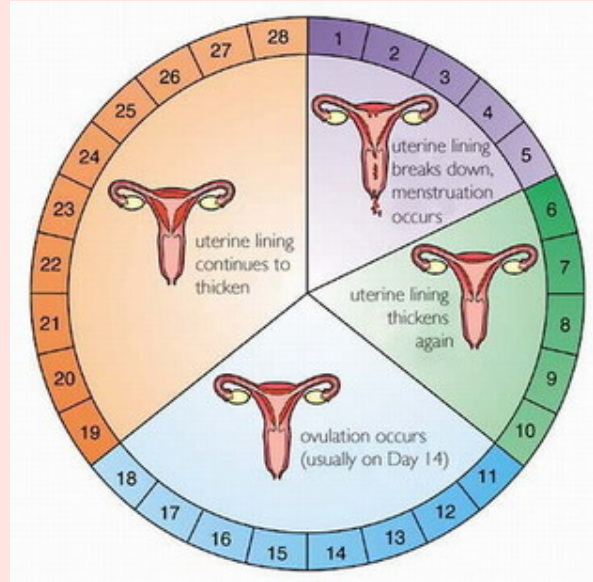


Preparation for Pregnancy



Female

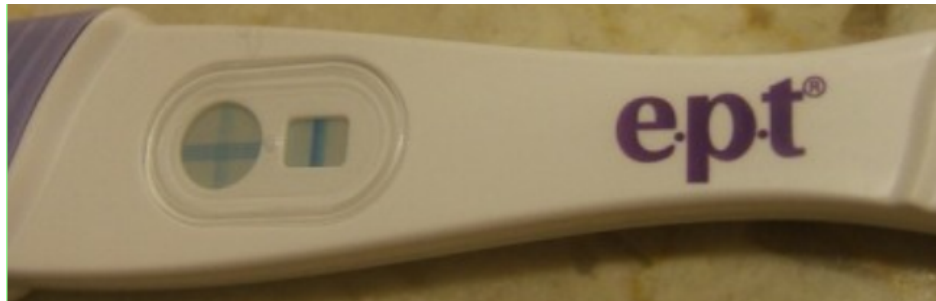
- Progesterone signals the body to prepare for fertilization.
- If fertilization occurs, the corpus luteum continues to produce progesterone for several weeks.
- If fertilization does not occur, production of progesterone slows and eventually stops, marking the end of the ovarian cycle.



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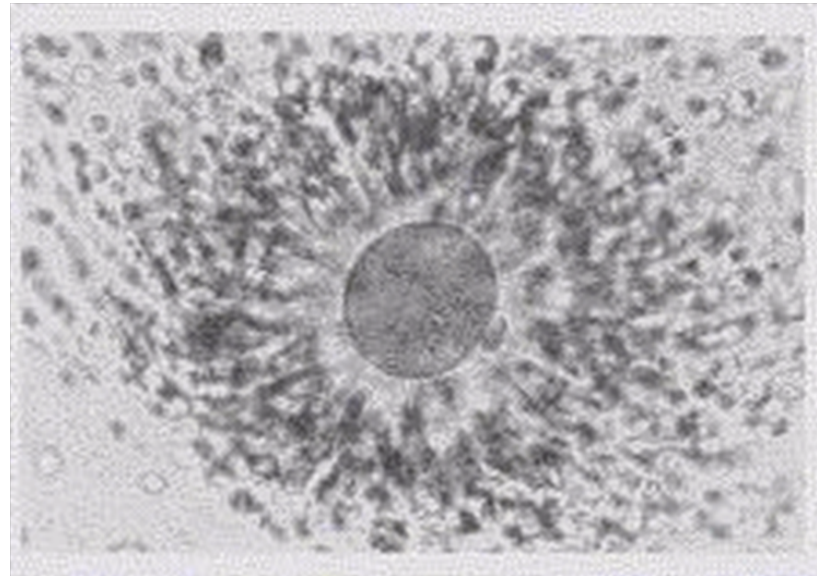
VIDEO
Ovulation commercial
<http://bit.ly/3B0AGT>

PREGNANCY



<http://bit.ly/2tZpdg>

**Female Sex Cell:
The Egg and its
surrounding cells**



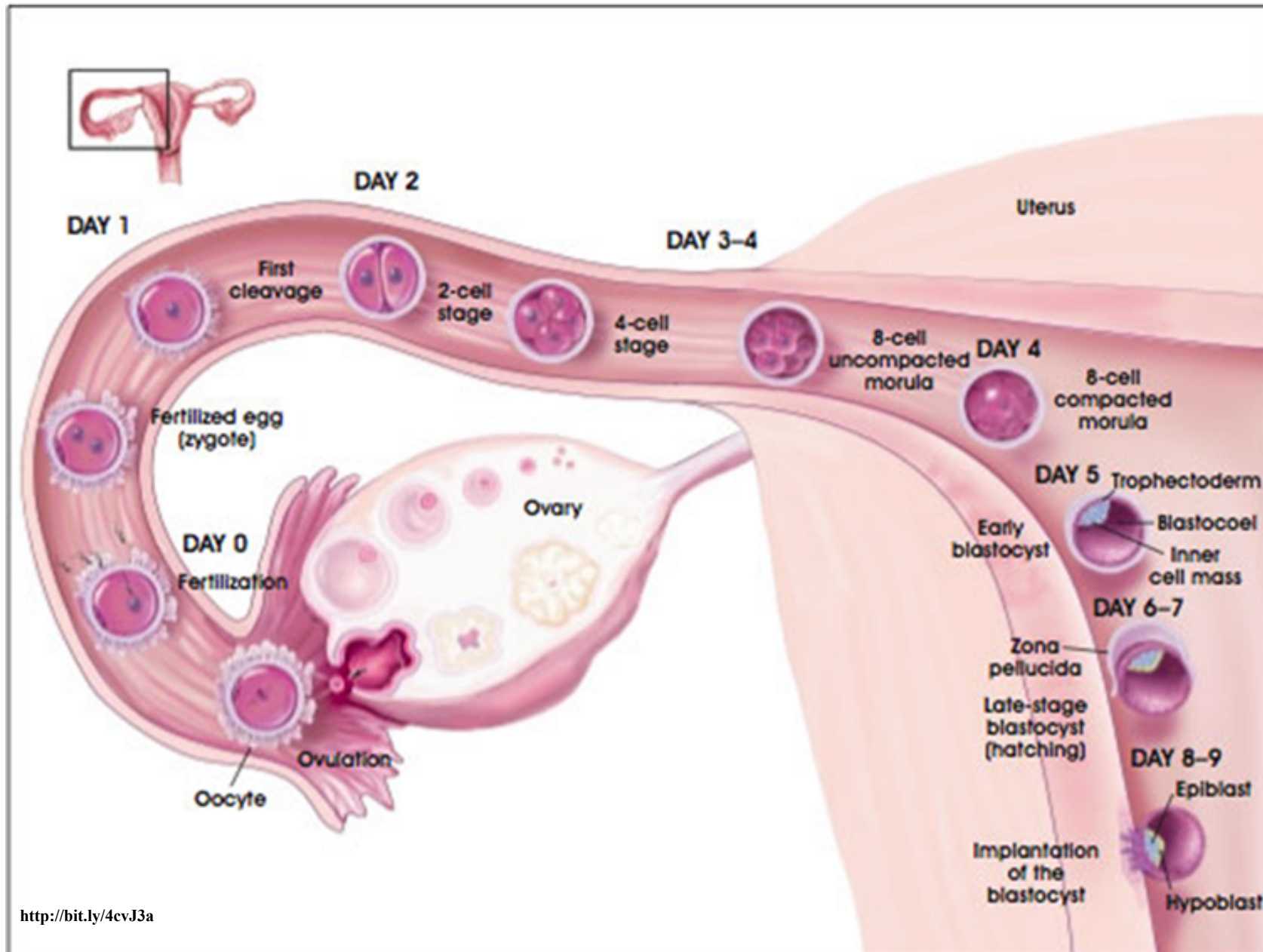
Fertilization

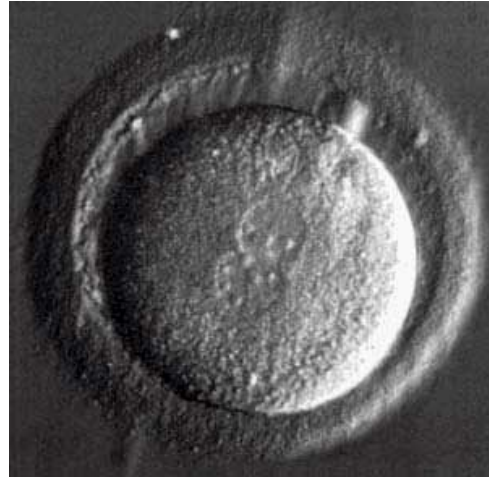
- To fertilize an ovum, a sperm cell must swim to a fallopian tube, where fertilization usually occurs.
- During fertilization, a sperm cell penetrates an egg by releasing the enzymes at the tip of its head, these enzymes break down the jellylike outer layer of the egg.
- The head of the sperm enters the egg, and the nuclei of the ovum and sperm fuse together, producing a diploid cell called a *zygote*.

ANIMATION

Human Fertilization

<http://goo.gl/EZthC>





Normal Pronuclei - 2 PN
First Sign of Fertilization
18 hrs post-insemination



Abnormal Pronuclei - 3 PN
Sign of Abnormal Fertilization

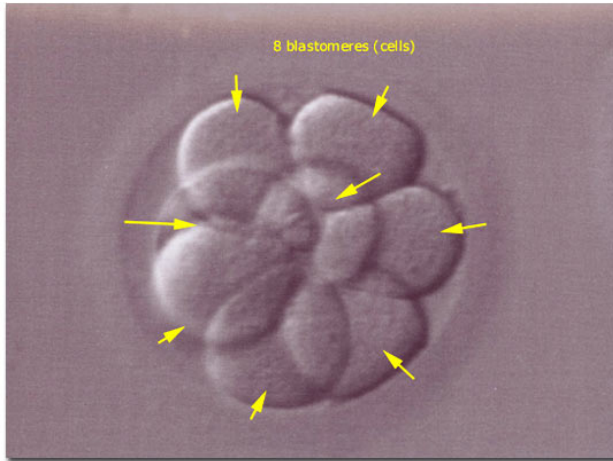


Normal 2-Cell Embryo
Day 1

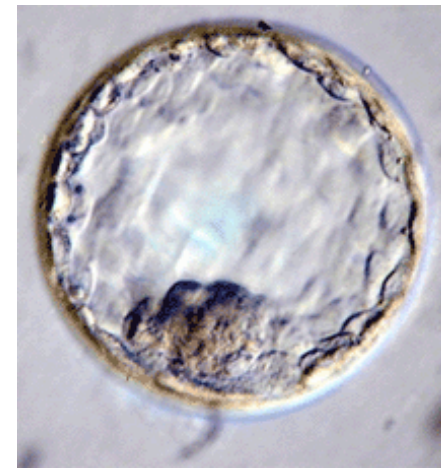


Normal 4-Cell Embryo
Day 2

<http://bit.ly/W53KJ>
<http://bit.ly/gKJdi>
<http://bit.ly/37YrI8>
<http://bit.ly/401ZXo>



**Normal 8-Cell Embryo
Day 3**



**Normal Blastocyst
Day 6-7**



Blastocyst Hatching

<http://bit.ly/2Tv4ts>

<http://bit.ly/22LijI>

<http://bit.ly/3M6gY8>

Carnegie Stages of Human Development

Dr Mark Hill, Cell Biology Lab, School of Medical Sciences (Anatomy), UNSW



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VIDEO

Birth of a baby

<http://bit.ly/QLXd>

Teacher's Notes

This class has been designed to cover the topics of *Reproduction in Humans* from Monday, June 27th till Friday, July 1st.

For further knowledge about this topic:

1. Conduct a thorough search under the topic: *Reproduction in Humans* on the Web, books and magazines.
2. If findings are not specific, ask your teacher for suggestions.

BACK

Objectives

- Identify and describe the parts, characteristics and functions of the Human Reproductive System.
- Understand the Gametogenesis processes.
- Understand the Menstrual Cycle, Fertilization, Embryonic and Fetal Development.

***Note:** All, or most, of the objectives will be covered during class time, however the student must be responsible for those objectives not covered or concluded.*

BACK

Vocabulary

- Testes:
- Ovaries:
- Gametes:
- Sperm:
- Egg:
- Fertilization:
- Embryo:
- Fetal development:
- Labor and Delivery:

***Note:** Most of the vocabulary words will be covered during class time, however the student must be responsible for those words not covered or concluded.*

BACK

Link and Learn

You can visit the following websites to improve your understanding on the present topic:

- <http://science-altair.wikispaces.com>
- <http://learningandscience.blogspot.com>

BACK

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BACK